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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/773,534	02/02/2001	Ferdi Schuth	078096-0102	6297

7590 06/29/2004
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EXAMINER	
ROSENBERGER, RICHARD A	
ART UNIT	PAPER NUMBER
2877	

DATE MAILED: 06/29/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No. 09/773,534	Applicant(s) SCHUTH ET AL.	
	Examiner Richard A Rosenberg	Art Unit 2877	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 08 April 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-25 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claim 6 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Independent claim 1 has been amended to require that the analyzing of the effluents be in parallel. Claim 6, indirectly dependent from claim 1, requires that the analyzing steps be carried out in sequence. This contradiction renders the claim, and what is intended to be claimed with this claim, unclear.

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1-25 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamada et al (US 6,495,105) in view of Cong (US 6,087,181), Grynberg et al (US 4,492,862), and the acknowledged prior art in the instant specification.

Yamada et al shows creating reactions at a plurality of locations (6) on a substrate (41), obtaining, for each location, an effluent comprising a reaction

product ("the formed gas", column 3, line 51, 57), which effluents are analyzed in parallel (by sensors 7).

Yamada et al does not teach photoacoustic analysis of the effluents, using a semiconductor type of detector, but is explicit that the analysis devices are "not limited to this type" (column 3, line 65), and explicitly mention an optical sensor may be used (column 4, line 5). Thus it would have been obvious to use any known method suitable for the detection and analysis of the gasses of interest in the effluent, including known photoacoustic detection methods..

The system of Cong, in a similar system, also has a substrate (28) with an array of catalysts (26) thereon within a reaction chamber. A starting material (a gas) is introduced into reaction chamber wherein an effluent comprising at least one reaction product and/or the starting material is produced. The effluent is analyzed by a "photothermal" method, which methods include photoacoustic methods (Cong, column 2, lines 7-8), which at least suggests using such well-known photoacoustic methods, as they are described by the reference as having been successfully used for trace gas detection (column 2, lines 9 and 10), and the instant specification, in the background of the invention section, notes that it is "one of the most sensitive and rapid optical analytical methods", referencing a prior art reference for that observation (the sentence bridging pages 1 and 2 of the instant specification).

Grynberg et al shows a known method which includes measuring an effluent with photoacoustic spectroscopy (see column 3, line 61 through column 4, line 16, and

claim 59, step (a)). Both the acknowledged prior art and Grynberg et al teach that the photoacoustic method is a well-known method that can be used to detect gasses, and Grynberg et al in particular teaches that it can be used to measure an effluent from a process for monitoring that process.

Modulating monochromatic light from a laser and detecting the photoacoustic signal with a microphone is a standard photoacoustic configuration, as discussed in the instant specification.

The Yamada et al and Cong references show substrates with the catalysts thereon, the use of other known arrangements in which the catalysts can be supported and exposed to the starting material for the reaction would have been obvious; the instant specification notes the prior art use of tubes (page 2, lines 23-25 and page 2, lines 13-17) for this purpose. The use of such a system for any reaction of a fluid that can be catalyzed would have been obvious because the purpose of the system is to test such catalyzed reactions and the catalysts for the reactions.

In the system of Yamada et al, the detection stations are above the reaction areas; the obvious use of a photoacoustic detectors for the detection taught by that reference would thus place the microphones of the photoacoustic devices above the reaction areas.

5. Yamada and Cong both teach using a tube to remove the effluent gasses from the reaction areas and present it to the detection devices; Grynberg et al also

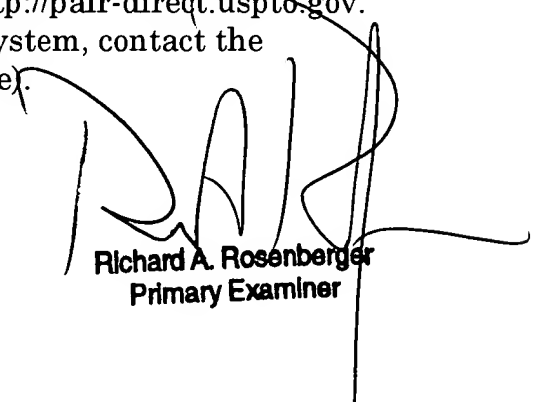
presents the tested gas to the measuring device through a tube. The instant disclosure includes an embodiment, shown in figure 3 and discussed in the paragraph bridging pages 22 and 23 of the specification, in which the effluents are photoacoustically measured "in place", with fewer microphones than sections and the signals from the different effluents being distinguished by the transit time of the sound waves. It would appear that claims directed to this embodiment with sufficient specificity would be allowable. Some of the instant claims appear to be direct broadly to this embodiment, claiming one or more microphones "above the substrate", although, as set forth above, the current claim language does not distinguish the location of the sensors shown in Yamada et al, which are above the substrate.

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Richard A Rosenberger whose telephone number is (571) 272-2428. The examiner can normally be reached on Monday through Friday during the hours of 8:00-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Frank Font can be reached on (571) 272-2415. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

R. A. Rosenberger
25 June 2004



Richard A. Rosenberger
Primary Examiner